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## An Assessment of the Use of the Arabic Language Tools in Knowledge Management

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### Abstract

Language is a vehicle to support knowledge representation and transfer. Accordingly, people rely on language to share their knowledge. The fact that knowledge sharing is a major activity in knowledge management implies that language has a major role to play in this process. In the case of Lebanon, a majority of enterprises, of different natures, utilizes non Arabic conversations and documents in their daily operations, while the native spoken language is Arabic.

This paper explores the literature on the role of language in knowledge management. An emphasis is placed on the use of language tools and their role. An investigation into the use of Arabic language and related tools for knowledge management is made. The results of literature review are used for a survey run on 50 employees in 15 educational, financial and tourist enterprises. The survey results showed that employees rely on language tools to handle exceptional situations, especially to translate Arabic non-technical terms. Some problems are recorded. As a conclusion, the need to update and publish specialized ontologies, and integrate them in the commonly used language tools, is highlighted. Some specifications are proposed.

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### 1. Introduction

There exists a massive literature on the role of language in knowledge sharing and transfer. With the advances in information and language technologies, the language tools gained, and are still gaining, a leading position. What applies to one language, specifically the English, is not necessarily true to other languages, like the Arabic, although there are around 350 millions Arabic speakers in the world, according to UN reports. Different techniques were developed for language handling and applications localization, proving that localization into

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Arabic is more difficult and costly than other languages. Lebanese, in their daily administrative activities, rely more on English and French than on Arabic.

With the aim of exploring the role played by the language tools in the Lebanese enterprises, this paper starts with a literature review on the Arabic language and its related tools, and the role of language in knowledge transfer. Then it proceeds to present the results of a short survey run on a relatively small population. The analysis and conclusion are expected to be the cornerstone of a series of future projects.

## **2. The Arabic Language**

The Arabic alphabet contains 28 letters. Words are written in horizontal lines from right to left, numerals are written from left to right. The form of letters changes depending on their position in a word, at the beginning, middle or end. Letters that can be joined are always joined. In addition, Arabic uses diacritics, which are used to mark short vowels.

Like other languages, Arabic has short vowels and long vowels. The Arabic noun can take one of three states of definiteness: definite, indefinite or construct state. An Arabic noun can take three cases: nominative, genitive and accusative, and three numbers: singular, dual and plural. In most of the cases, the plural of a noun is formed by changing the vowel structure of the word. Arabic has two genders, expressed by pronominal, verbal and adjectival agreement.

In Arabic, a word is classified as a noun, a verb, a pronoun or a preposition. Arabic has also connectors and conjunctions which allow for many clauses to run on and on in the same sentence. There are also active and passive particles, and there are many types of sentences.

One of the problems in current Arabic is the lack of linguistic research to satisfy the needs of the modern computing environment. There are few grammar checkers for Arabic, there are no quality OCR, and, most importantly, there are no powerful linguistically-aware search engines or string-processing utilities to handle Arabic.

Most of the translators into Arabic follow unclear methodologies. The majority of Arabic companies have their documents and web sites, brochures, reports and manuals in English. It is believed that Arabic does not allow for successful expression of messages [1].

## **3. Language and knowledge transfer**

This study adopts the definition of knowledge offered by Roberts [2] stating that knowledge is “the application and productive use of information... it involves an awareness or understanding gained through experience, familiarity or learning”. It also adopts the categorization of knowledge, as is currently generally accepted, as being tacit and explicit (or codified) knowledge [3]. These two categories operate concurrently and interactively.

Knowledge transfer is the dissemination or transfer of knowledge from one party to another. Knowledge transfer requires some form of articulation to make the knowledge explicit. The role of language in this articulation is essential although non-verbal communication can be involved. Accordingly, words, technical drawings, and graphics are seen as codified forms used to transfer explicit knowledge. It is important to note that in order to use codified knowledge in knowledge transfer, tacit knowledge is used.

Hedlund [4] pointed out: “For knowledge to be exchanged and combined, there has to be a shared medium of communication. People have to be able to make sense to and of each other. One aspect of this is shared spoken general language”.

The parties involved in knowledge transfer are individuals who are the key, groups, and organizations. Howells and Roberts [5] point out that while knowledge can radiate out from the individual, “becoming more codified, more information-like, more transferable and more global in its reach, it still requires interpretation at

the individual level ... its [knowledge] interpretation, comprehension and absorption back into a knowledge state remains at the individual level”.

At the organizational level, literature points to an absorptive capacity which is “the ability to recognize, accept and apply new knowledge that has been transferred into an organization from elsewhere.” [5] The organizational absorptive capacity is not just the sum of the absorptive capacity of individual employees, but is also contained in organizational routines and the like [5]. Language is part of absorptive capacity but it relies mainly on individual competence.

To facilitate the realization of the role of language in knowledge transfer, the international knowledge transfer model (IKTM) proposed by Welch & Welch [6] is adopted as represented in Fig 1.

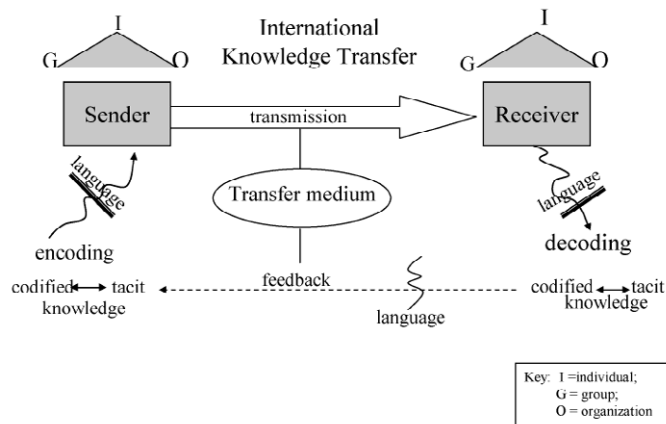


Fig. 1 IKTM Model [6]

This model is based on the basic communication model, where the sender encodes the message, uses an appropriate medium/channel to transmit the message, and the receiver decodes the message [7]. The success of the transfer is affected by the ability of the sender to accurately encode a meaningful, complete message; the selection of the correct medium or channel of transfer; and the ability of the receiver to decode and understand the message as it was intended [6].

IKTM illustrates how language affects both sides of the transfer process. At both ends translation might be necessary. Other researchers agree with this conclusion. Buckley et al. note: “Knowledge transfer requires the use of language and communication to enable articulation in order to promote assimilation” [8].

In order to face the language issue in knowledge flows, as a response to the management’s concern to get effective modes of knowledge, information and data transfer, the organizations tend to use one or more common corporate language. This issue gains more importance in the presence of language differences and raises question concerning some form of translation, especially at the lowest level of management. When workers have to report and deal with a language other than their native, some problems occur and assistance becomes more vital.

#### 4. Language tools

The definition of a language tool differs from one developer to another. A simple definition would be that a language tool is any application that assists in using a language, or some languages. A compilation of the language tools provided by different developers and used by different users can be summarized in the following categories:

- Dictionaries: a reference for words with meaning, pronunciation, and etymology.
- Translators: applications to translate words and/or texts from one language to another.
- Thesaurus: a language reference to look up the words that are related, like synonyms and antonyms.
- Quotes: Catalogs of quotations and famous quotes on some subject.
- Specialized Words: Catalogs of words that helps gaining understanding of a technical or industry-specific terminology.
- Letter Writing Guides: Catalogs containing tips, advice, and sample letters to help in the writing activities.
- Spell checkers: Application programs that flag words in a document that may not be spelled correctly. Some spell checkers suggest related words.
- Grammar checkers: Programs, or part of a program, to verify the correctness of written text grammatically.
- Language Style Guides: Set of standards for the writing and design of documents, either for general use or for a specific publication, organization or field. The implementation of a style guide provides uniformity in style and formatting within a document and across multiple documents.

All these tools may be stand-alone applications, or as part of a larger application, such as a word processor, email client, electronic dictionary, or search engine. While most of them started for English or European languages, today they exist for tens of languages, with different levels of quality.

## **5. Arabic Language Tools**

Arabic language tools can be classified under 2 categories. The first category includes the applications developed by researchers and research centers like multi-lingual dictionaries, lexicons, Literary terms dictionaries, specialized dictionaries like the medical dictionary from World Health Organization, FAO Terminology, United Nations 6-language terminology, computing terms, financial terms dictionary, psychological and psychosomatal terms. The second category includes applications developed by software suits producers like Microsoft language pack, Arabic tools on iTools, and similar. In addition to both, the Arabic Romanization software are gaining popularity, especially among the youth and the texting users.

## **6. The Lebanese Case**

Lebanon is a special case among the Arab countries, in terms of foreign language mastery among Lebanese. All the schools teach some foreign language, mainly English or French or the two. While English or French are taught alongside Arabic during the early years of school, after primary education, English or French becomes the mandatory language of instruction for math and science in all schools [9]. The majority of the companies' files are in English; even the government accepts documents in English and French. Accordingly, the majority of knowledge workers have to master some level of foreign language.

## **7. The Survey**

A survey was run on 50 employees from 15 educational, financial and tourist enterprises. The interviewees were selected from those who deal with specialized administrative duties that require both extensive professional knowledge and language mastery. Accordingly, the duties of these assistants are more demanding in terms of a thorough understanding and utilization of the terminology and procedures, in addition to reading and writing reports and letters. The selected enterprises accept dealing with documents in Arabic, English or French.

Therefore, the interviewees have to prepare letters or reports in any of the 3 languages, and based on documents in any of the 3 languages.

The survey was treated for descriptive information and the following was found:

1. The first question is a checking on whether some language tool is used. The respondents negatively were eliminated from the studied poll. The remaining set counted 50 interviewees.
2. 37 of the respondents utilize Microsoft Office, and consequently rely on Microsoft language pack. The remaining 13 utilize open office and rely on a variety of tools.
3. 35 respondents use only spell checkers, grammar checkers, dictionaries and thesauri.
4. 16 rely on Arabic Romanization software, mainly yamli [10] and Microsoft Translate.
5. 31 respondents are satisfied with the tools in hand while the remaining 19 prefer something more specialized.
6. 9 interviewees come from the tourism sector and point out to the lack of Arabic terms, since they need to deal with customers in Arabic most of the time.
7. The 24 interviewees coming from educational organizations are satisfied with the tools available online.
8. The 17 interviewees coming from banks and financial consultant offices reported the lack of good catalogs of financial terms, spell checkers and grammar checkers in Arabic, while they expressed satisfaction with the available tools for English and French.
9. The closing question concerns the appreciation of these tools. Interviewees were asked to rate the assistance on a 1 to 5 scale, with 1 is the minimum. 33 answered with 5, and no one below 2.

## 8. Analysis

The major drawback of the survey used in this study is the small number of interviewees and their backgrounds, both educational and professional. The analysis of the answers leads to the following conclusions:

- Based on the closing question, the role of the language tools in knowledge transfer is certainly positive.
- The source of the tool does not affect its utilization as long as it serves its purpose.
- Specialized ontologies should be updated and published.
- The localization of existing tools might be helpful.

## 9. Conclusion and future work

A more detailed and deeper analysis is needed for each of the available tools in order to increase its advantage for the user in Lebanon. Future work can range from tool evaluation to tool development.

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